DEPARTMENT of ENVIRONMENTAL SERVICES
Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	HORSESHOE POND	Lake Area (ha):	18.17
Town:	CONCORD	Maximum depth (m):	4.2
County:	Merrimack	Mean depth (m):	1.3
River Basin:	Merrimack	Volume (m^3):	236000
Latitude:	43°13'06" N	Relative depth:	0.9
Longitude:	71°32'34" W	Shore configuration:	2.12
Elevation (ft):	230	Areal water load (m/yr):	6.26
Shore length (m):	3200	Flushing rate (yr^{-1}):	4.80
Watershed area (ha):	280.3	P retention coeff.:	0.62
% watershed ponded:	1.5	Lake type:	natural

BIOLOGICAL:		9 January 2002	4 September 2001
DOM. PHYTOPLANKTON (% TOTAL)	#1	SPARSE - NO DOMINANT	CERATIUM 95%
	#2		
	#3		
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			21.46
DOM. ZOOPLANKTON (% TOTAL)	#1	CALANOID COPEPOD 67%	KERATELLA 48%
	#2		PROTOZOAN SPP 18%
	#3		NAUPLIUS LARVA 17%
ROTIFERS/LITER		6	687
MICROCRUSTACEA/LITER		229	282
ZOOPLANKTON ABUNDANCE (#/L)		253	1198
VASCULAR PLANT ABUNDANCE			Abundant
SECCHI DISK TRANSPARENCY (m)			2.6
BOTTOM DISSOLVED OXYGEN (mg/L)		11.4	0.5
BACTERIA (E. coli, #/100 ml)	#1		
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

not stratified

Depth of thermocline (m): None
Hypolimnion volume (m^3) : None
Anoxic volume (m^3) : 950

CHEMICAL:

Lake: HORSESHOE POND
Town: CONCORD

	9 January 2002		4 September 2001		
DEPTH (m)	1.5	3.0	1.5		3.0
pH (units)	7.1	7.1	7.0		6.9
A.N.C. (Alkalinity)	210.6	250.6	24.9		25.1
NITRATE NITROGEN	0.22	0.24	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.40	0.60	0.40		0.60
TOTAL PHOSPHORUS	0.016	0.016	0.017		0.020
CONDUCTIVITY (µmhos/cm)	555.0	558.0	535.0		535.0
APPARENT COLOR (cpu)	9	11	22		31
MAGNESIUM			3.56		
CALCIUM			15.3		
SODIUM			65.0		
POTASSIUM			2.34		
CHLORIDE	134	148	143		143
SULFATE	12	12	8		8
TN : TP	39	53	24		30
CALCITE SATURATION INDEX			1.7		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 2001

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	3	5	4	12	Eutro.

COMMENTS:

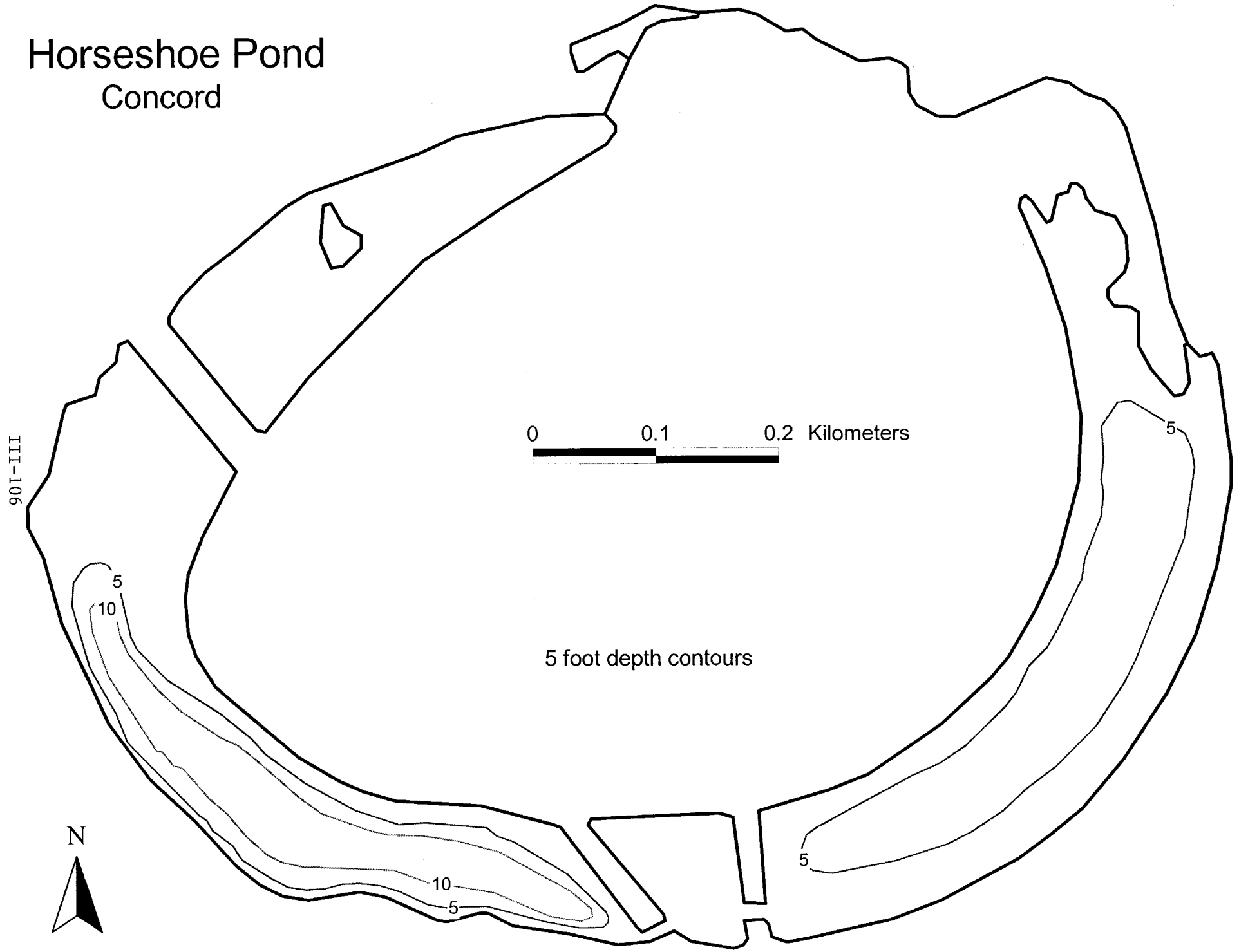
1. The right (eastern) arm of the pond was surveyed in 1996. The 2001 survey was of the left (western) arm (i.e., this is where the water quality samples were collected), but the following plant and bathymetric maps were constructed using data from both surveys.

2. A railroad track separates the two arms of this horseshoe-shaped pond.

3. This is a circum-neutral (pH 7), eutrophic, ox-bow pond of the Merrimack River. Elevated sodium, chloride and conductivity values suggest road salt runoff. The other cations (Ca, Mg & K) were also in much higher concentrations than found in typical NH lakes (see p. II-10) but not unusual for an urban pond.

4. The very high ANC values in the winter are unexplainable and suspect. The summer values are similar to the values found in the 1996 survey, both winter and summer.

Horseshoe Pond
Concord



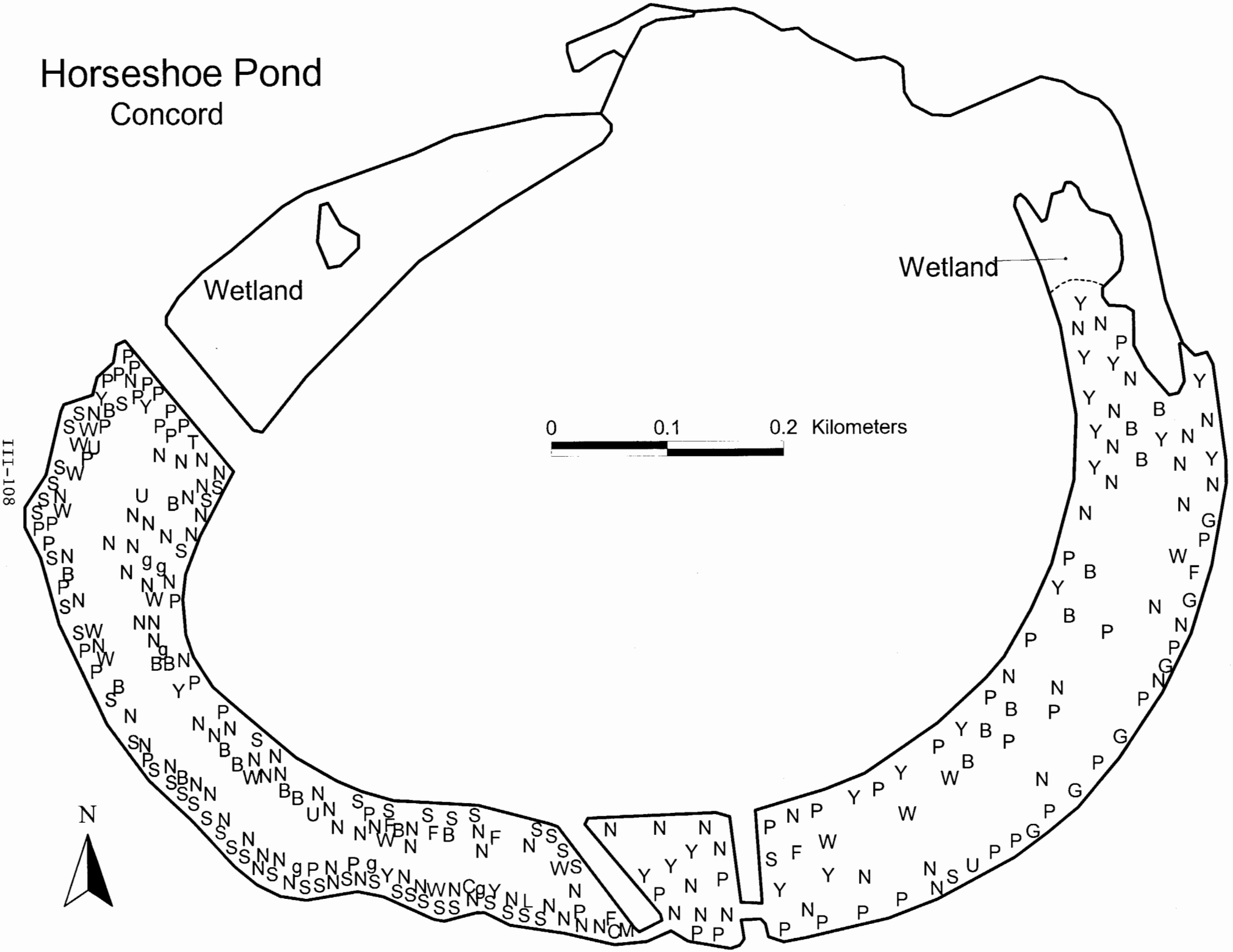
FIELD DATA SHEET

LAKE: HORSESHOE POND TOWN: CONCORD
DATE: 09/04/2001 WEATHER: Sunny, clear & warm

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	22.1	6.0	69 %
	1.0	21.8	6.0	68 %
	2.0	21.6	5.4	61 %
	3.0	21.5	4.9	56 %
	4.0	19.6	0.5	5 %

SECCHI DISK (m): 2.6 COMMENTS:
BOTTOM DEPTH (m): 4.2
TIME: 1013

*Dissolved oxygen values are in mg/L


Horseshoe Pond
Concord
Wetland
Wetland
0
0.1
0.2 Kilometers
N
III-108

AQUATIC PLANT SURVEY

LAKE: HORSESHOE POND TOWN: CONCORD DATE: 09/04/2001

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
N	Nymphaea	White water lily	Abundant
S	Sparganium	Bur reed	Common
P	Pontederia cordata	Pickerelweed	Common
F	Nymphoides cordatum	Floating heart	Scattered
W	Potamogeton	Pondweed	Scattered
B	Brasenia schreberi	Water shield	Scattered
U	Utricularia	Bladderwort	Scattered
g	Megalodonta Beckii	Water marigold	Scattered
Y	Nuphar	Yellow water lily	Scattered
T	Typha	Cattail	Sparse
C	Ceratophyllum demersum	Coontail	Sparse
L	Lythrum salicaria	Purple loosestrife	Sparse
M	Myriophyllum	Non-flowering milfoil	Sparse

OVERALL ABUNDANCE: Abundant

GENERAL OBSERVATIONS:

1. The northern section of this shallow, ox-bow pond is a wetland with little to no open water.